IT_PM

GV: Tran Son Hai

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|	Urgent	Not Urgent
Important	**DO FIRST** Transfer injured kid to hospital Prepare for tommorow's meeting Respond to important emails	**SCHEDULE** Attend a marketing seminar Go to gym regularly Find ideas for blog posts Read a book Date night with gf
Not Important	**DELEGATE/DELAY** Help Pete paint his house Book tickets for Athens trip Pay bills	**DELETE** Watch favorite TV show Respond to every Fb comment Play Skyrim Read low quality news

Documents

- Statement Of Work (SOW):
- Proposal Document (PD):
- Requirements Specification (SRS):
- Design Document (SDD):
- Test Report (TR):
- User Manual (UM):

SOW

- Project name, project manager, investor
- Introduction
- Objective
- Scope
- Milestones
- Budget
- Agreement and signature

Process for building SOW
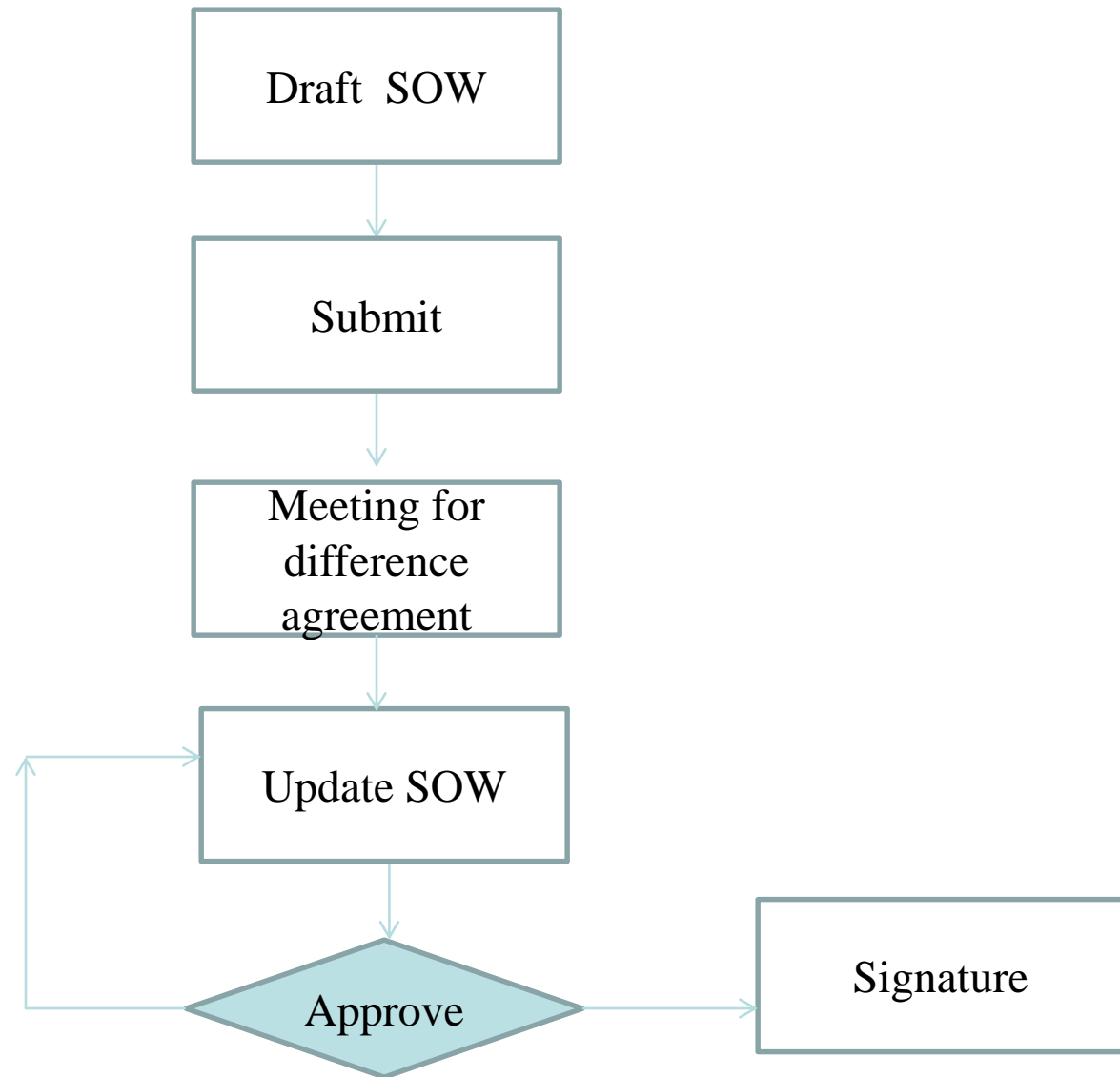
Exerciser

- Write SOW for your project

Roles in IT Project

- Programmers (system engineers)
  - Technical Lead, Technical Architect, Programmer, Senior programmer
- Quality Assurance (QA) engineers (testers)
  - QA Manager, QA Lead, QA staff
- DBAs
  - DB Administrator, DB Programmer, DB Modeler
- CM Engineers (build engineers)
- Network Engineers, System Administrators
- Analysts (business analysts / product owner)
- UI Designers
- Documentation Writers (editors, documentation specialist)
- Project Manager / Scrum Master

Work Breakdown Structure
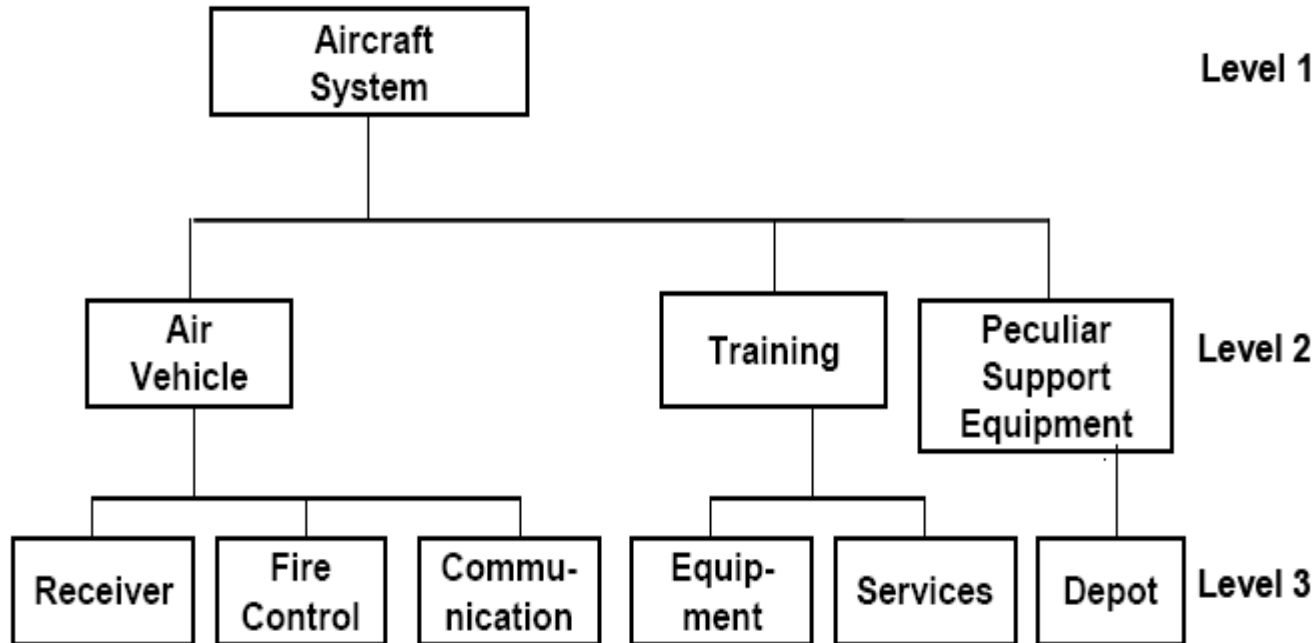
Example of a product oriented work breakdown structure of an aircraft system.

WBS example based on software development process
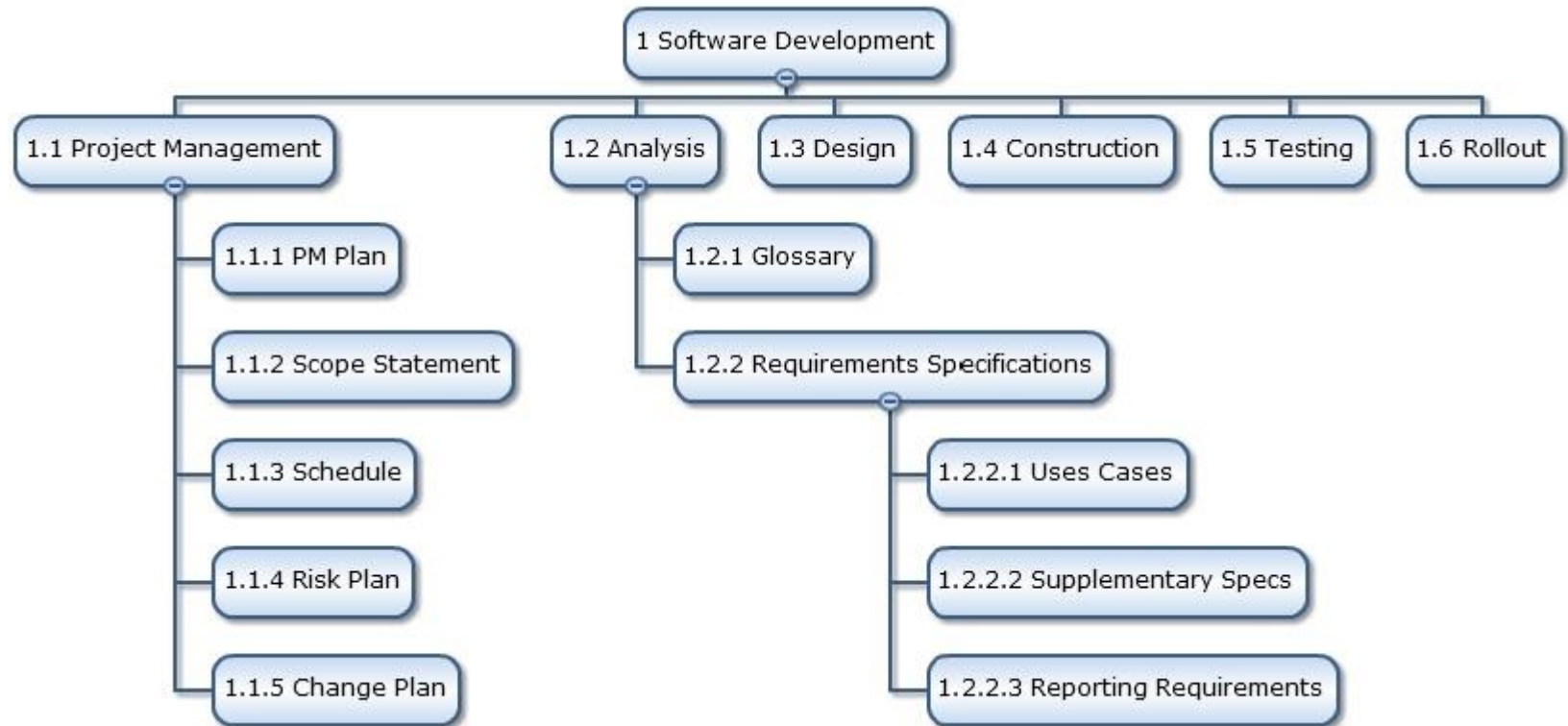
Example of a process oriented work breakdown structure of an aircraft system.
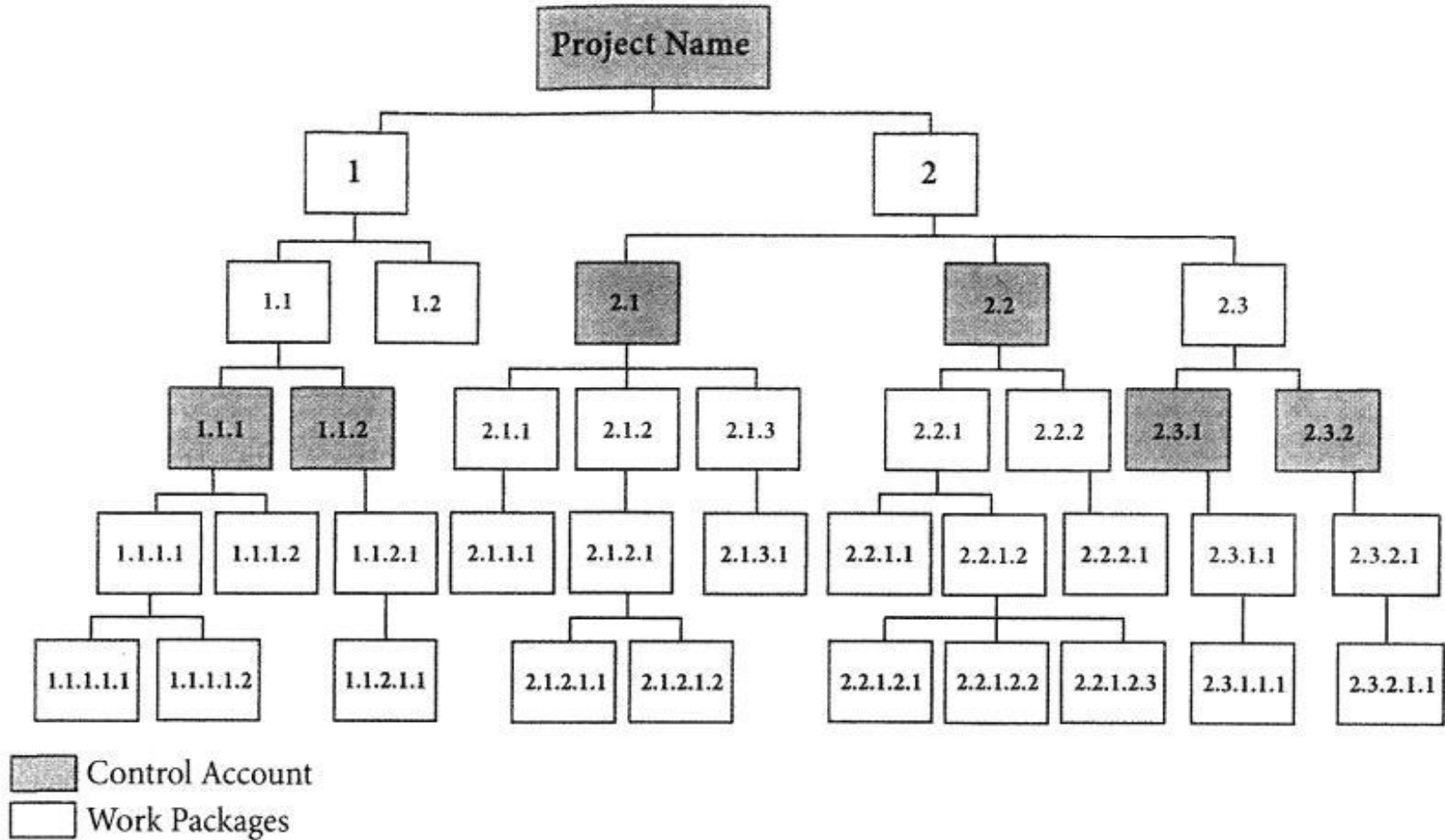
Work breakdown structure

Figure 5.6: Sample WBS Numbering System

WBS dictionary

Project Name: Customer Help Desk

Work Package ID: 1.4.1.1

Work Package Name: Designed User Screen

Work Package Description: Using the customer's User Screen Specification, a new top-level layout design is to be created. Based on this a non-functioning layout demonstrator is to be prepared to collect feedback from the customer. A fully functional prototype will be created for the client to review and approve.

Assigned To: Dave Litten	**Group/Dept**: IT Systems
Date Assigned: 7/30/09	**Date Due**: 15/9/09
Estimated Cost: $3,800.00	**Account Code**: CHD/1/4/33
Acceptance Criteria:	**Resources Assigned**:
Deliverables:	**Assumptions**:

Assignment

- Draw WBS for your project using any tools you want
- Write some main WBS Dictionary

Roles in IT Project

Role	Description	Responsibilities
Project manager	The Project Manager is responsible for developing, in conjunction with the Project Sponsor, the project charter. The Project Manager ensures that the project is delivered on time, within budget, and to the required quality standards.	• Manage and lead the project team. • Manage the coordination of the partners and the working groups. • Develop and maintain a detailed project plan.
Technical Lead	…	…
…	…	…
…	…	…

Overview project plan

ST T	Tasks	# People	Time (week)													
			1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Gather Requirement	2	■													
2	Requirement Analysis	2	■	■												
3	Design system	3			■	■										
4	Development	5					■	■	■	■	■					
5	Test and fix bugs	3										■	■			
6	Deployment	2												■	■	■
7	Maintenance															

Email Communication

- From:
- To:
- CC:
- BCC:
- Subject:
- Content:
  - Dear
  - Blank Line
  - ……
  - End of email

Planing and Estimation

Ai (who)	Làm gì (do what)	Khi nào (When)	{Ở đâu] (where)	Chi phí (Cost)	Ghi chú (note)
Nguyễn Văn A	Viết form đăng nhập	4h		4x8USD	

- Identify resource.
- Decomposition project into tasks.
- Assign people for the suitable tasks.

Phát thảo kế hoạch

- Phương pháp STOP
  - Situation (Tình huống)
  - Target (Mục tiêu)
    - Specific (cụ thể)
    - Measurable (có thể định lượng)
    - Agree upon (đồng thuận)
    - Realistic (có thể thực hiện)
    - Time bound (giới hạn thời gian)
  - Option (phương án)
  - Plan (kế hoạch)

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Example

- Picnic plan:
  - Situation:
    - Someone lost → remember the leader's phone number
    - Lost all funds → Contingency budget
    - Someone is sick→ Who brings medicine…

Example

- Picnic plan:
  - Target:
    - Specific (cụ thể): go to Vũng Tàu in Nov 20th
    - Measurable (có thể định lượng): minimum 10 people with budget less than 1M/personi.
    - Agree upon (đồng thuận): 90% agreement
    - Realistic (có thể thực hiện): (truth)
    - Time bound (giới hạn thời gian): 3 days

Ví dụ

- Lập kế hoạch đi pinic:
  - Option:
    - Tự thiết kế chương trình.
    - Thuê tour du lịch.
  - Plan: who do what when? (thảo luận nhóm)

IT Project Management

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Planning

Agenda

- Introduction
- Creating the Project Schedule
  - Project Network Diagram
  - Gantt Chart

Introduction

- Work Breakdown Structure
- Effort Estimation

#	Task	Prior Task	Estimation
1	A		1
2	B	A	3
3	C	A	1
4	D	B, C	1

- =>Bước kế tiếp là xây dựng lịch biểu
  - Project Network Diagram
  - Gantt Chart

Introduction

– Project Network Diagram

Gantt

– Gantt Chart

WBS	Task Name	Duration	Start	Finish
1	⊟ **Project 1**	5 days ?	Tue 3/24/09	Mon 3/30/09
1.1	A	1 day?	Tue 3/24/09	Tue 3/24/09
1.2	B	3 days	Wed 3/25/09	Fri 3/27/09
1.3	C	1 day?	Wed 3/25/09	Wed 3/25/09
1.4	D	1 day?	Mon 3/30/09	Mon 3/30/09
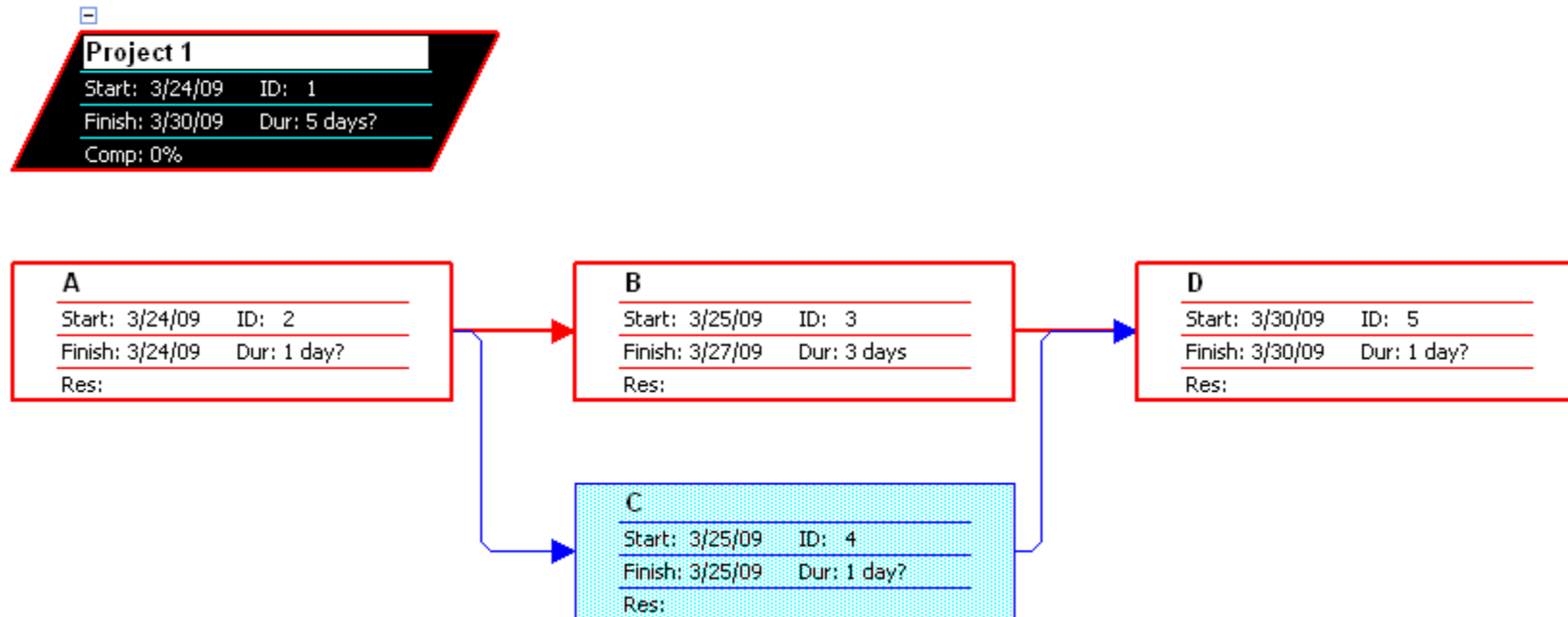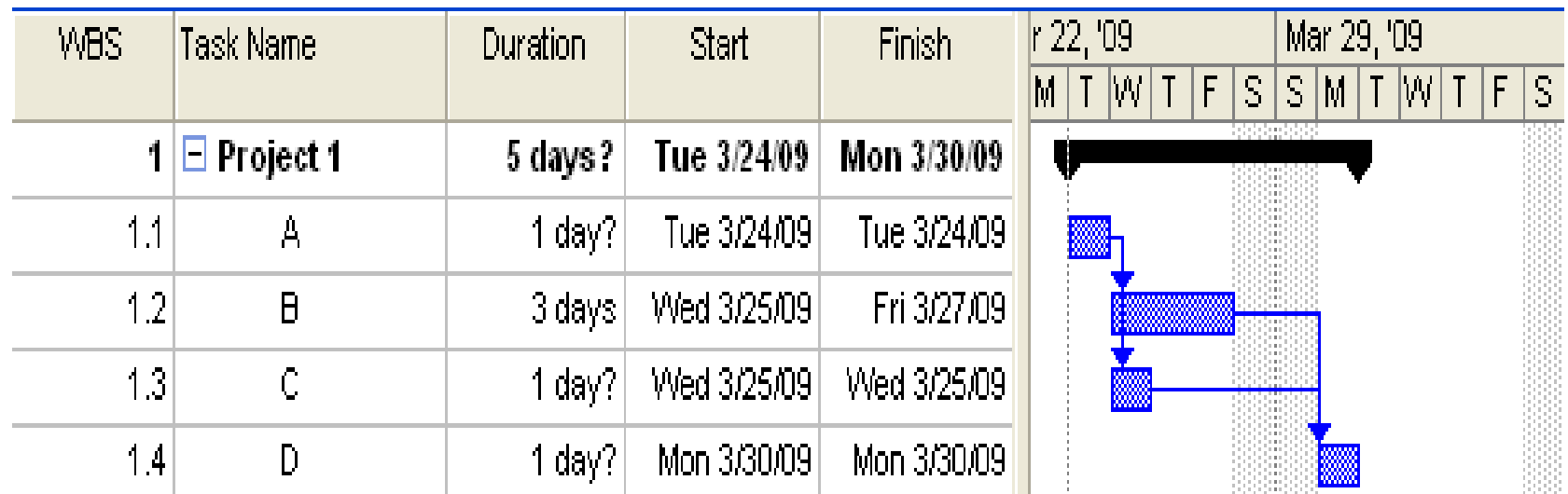
Project Network Diagram

- 2 types of PND
  - AOA: Activity on Arrow

  - AON: Activity on Node

AON
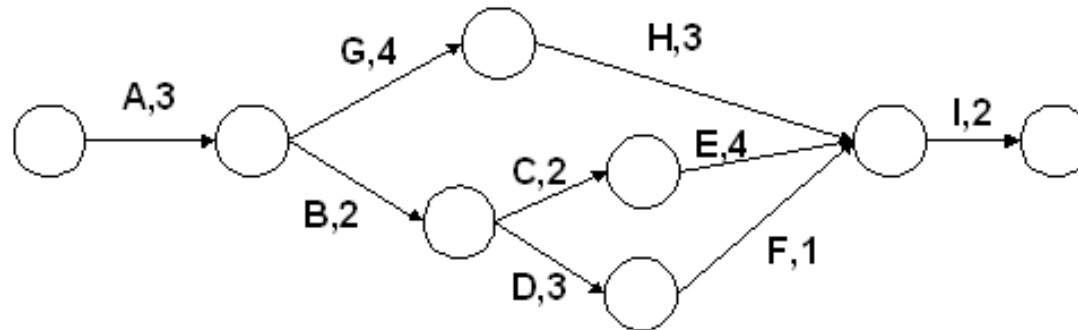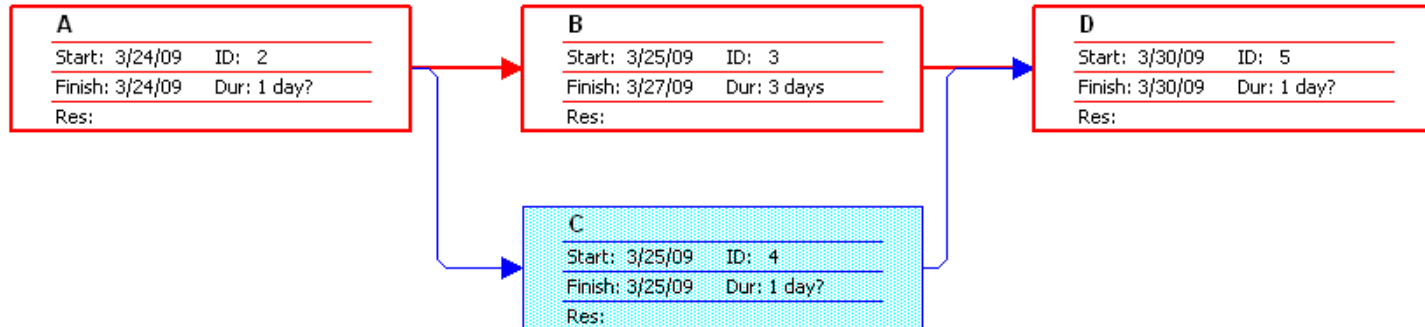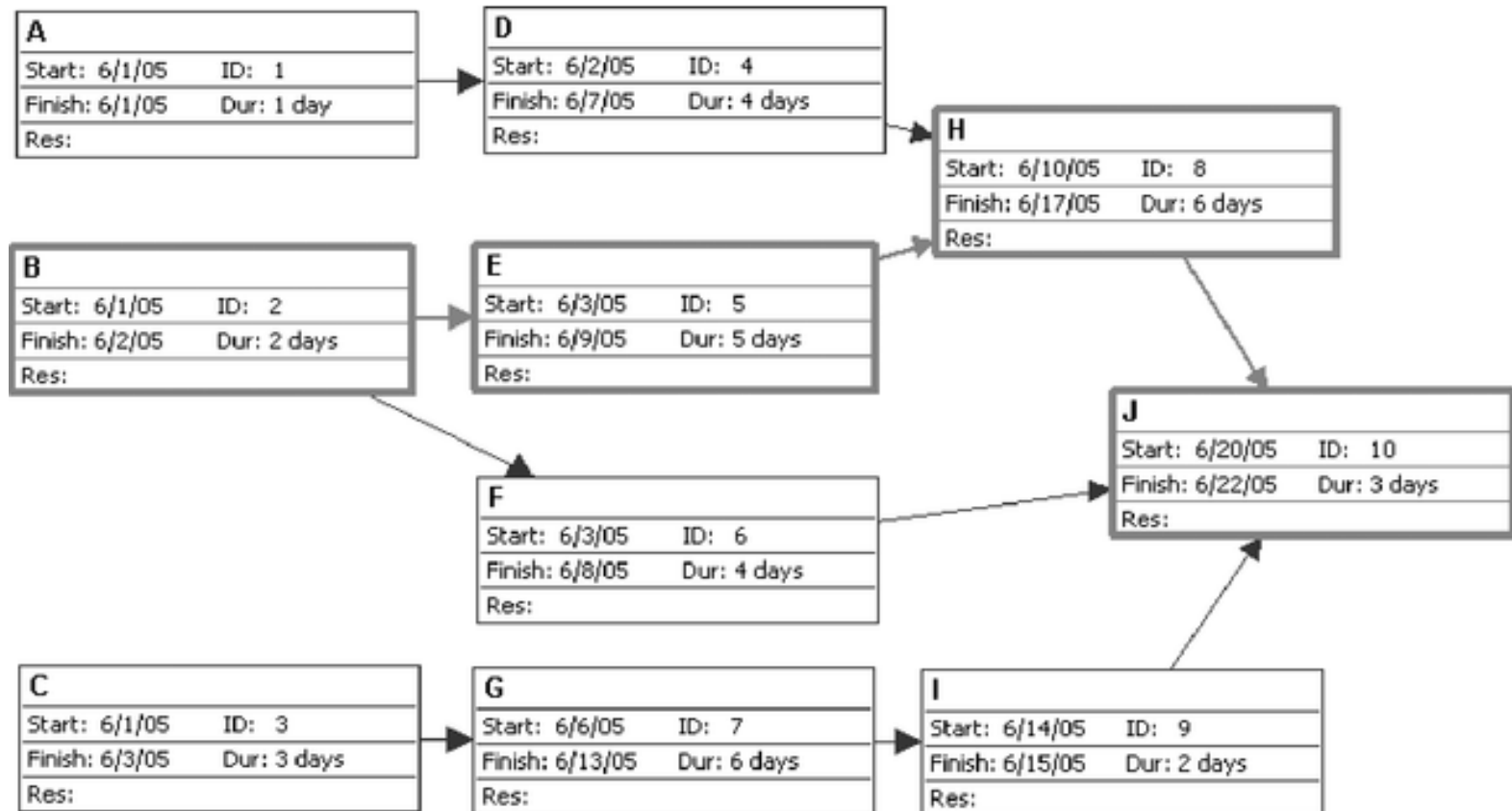
Figure 6-4. Sample Precedence Diagramming Method (PDM) Network Diagram for Project X

AOA
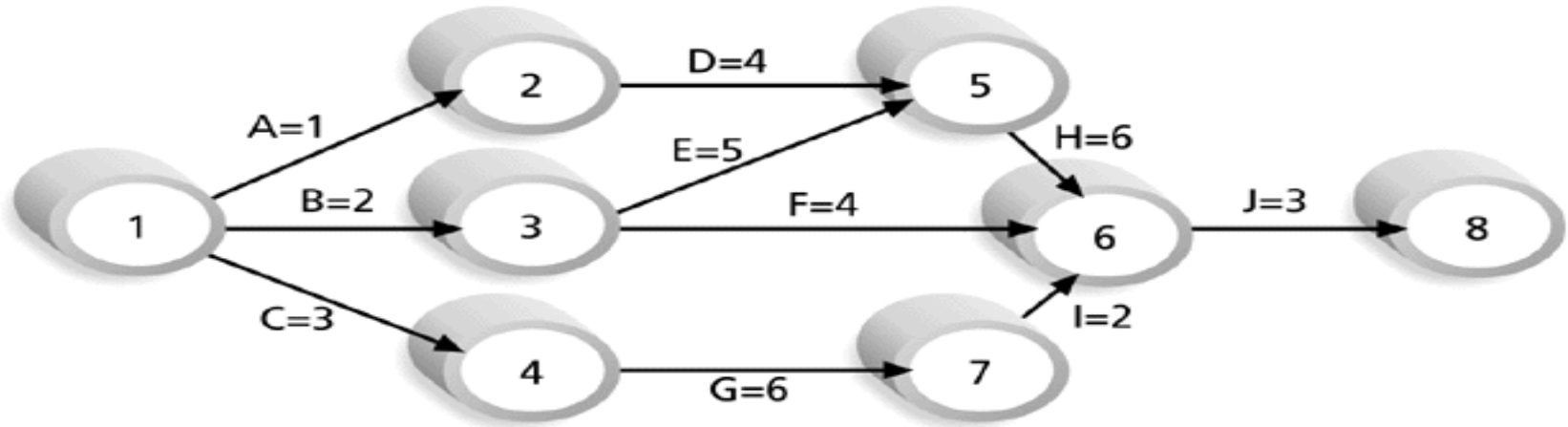
Note: Assume all durations are in days.

Path		Length
Path 1:	A-D-H-J	Length = 1+4+6+3 = 14 days
Path 2:	**B-E-H-J**	**Length = 2+5+6+3 = 16 days**
Path 3:	B-F-J	Length = 2+4+3 = 9 days
Path 4:	C-G-I-J	Length = 3+6+2+3 = 14 days

Since the critical path is the longest path through the network diagram, Path 2, B-E-H-J, is the critical path for Project X.

a. How many paths?

b) Length of each path?

c) What is critical path?

d) How long to finish the project?

Project Network Diagram

- AON (Activity On Node)
  - Task node information, consist:
    - Task name or WBS ID
    - Duration
    - ES, EF
    - LS, LF
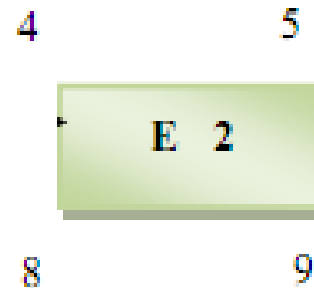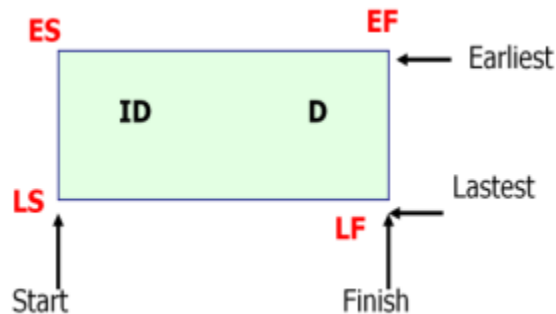
Project Network Diagram

- Task Dependency Relationships
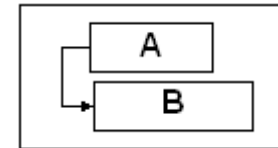 - Finish-to-Start (FS)
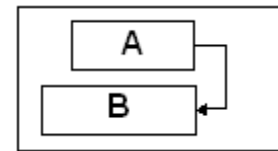   - B cannot start till A finishes
  - Start-to-Start (SS)
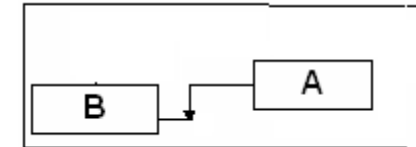   - B cannot start till A starts
  - Finish-to-Finish (FF)
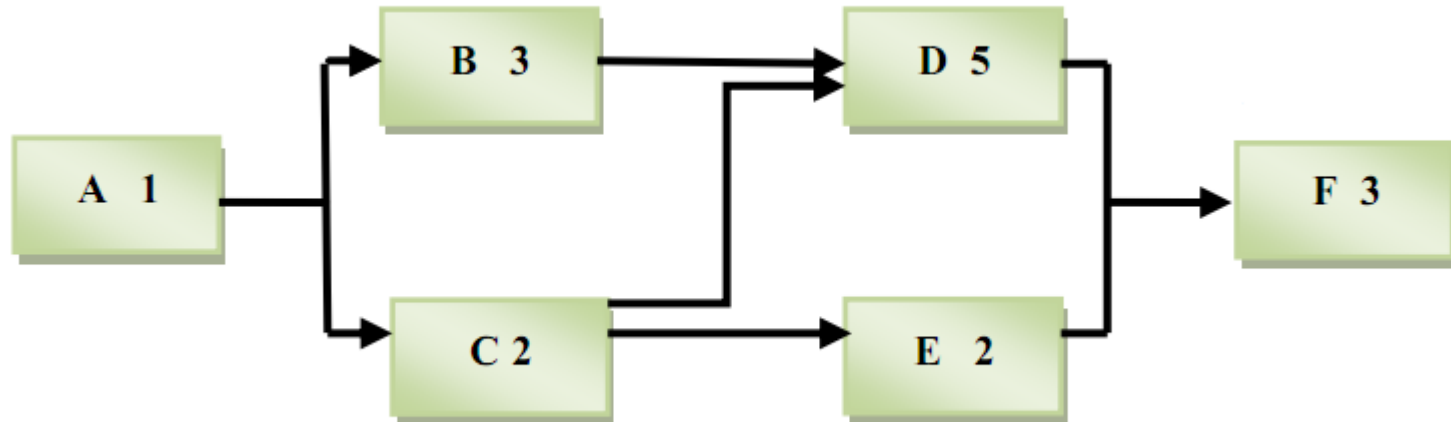   - B cannot finish till A finishes
  - Start-to-Finish (SF)
    - B cannot finish till A starts (rare)
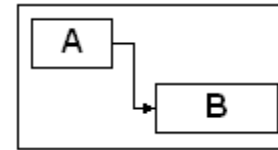
8/31/2020

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Project Network Diagram

- Ví dụ

- Caculate ES, EF, LS, LF

Project Network Diagram

- Formulas
  - Step 1: Caculate ES và EF
    - Forward Pass
    - For every task A[i]
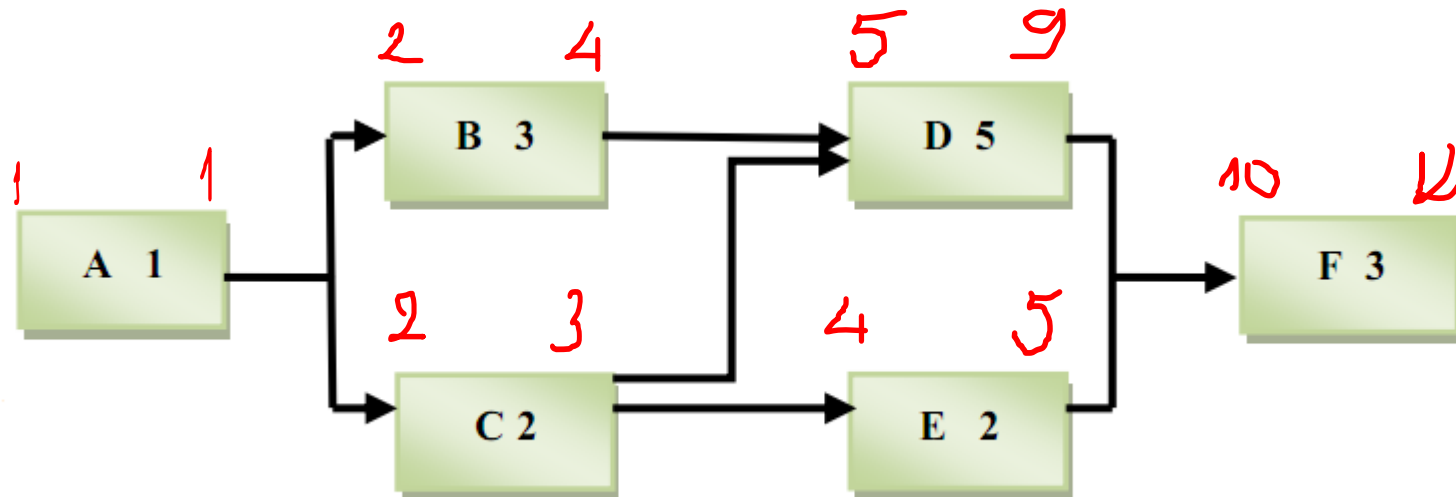   - If A[i] is the first task
        - ES (A[i]) = 1
      - Else
        - ES (A[i])= Max (EF(A[j])) + 1, A[j] is prior task (trước) A[i]
      - EF(A[i]) = ES(A[i]) + Duration - 1

Project Network Diagram

- Example

ES (A[i])= Max (EF(A[j])) + 1

EF(A[i]) = ES(A[i]) + Duration - 1

Project Network Diagram

- Formulas
  - Step 2: Tính LS và LF
    - Backward Pass
    - For every task A[i]
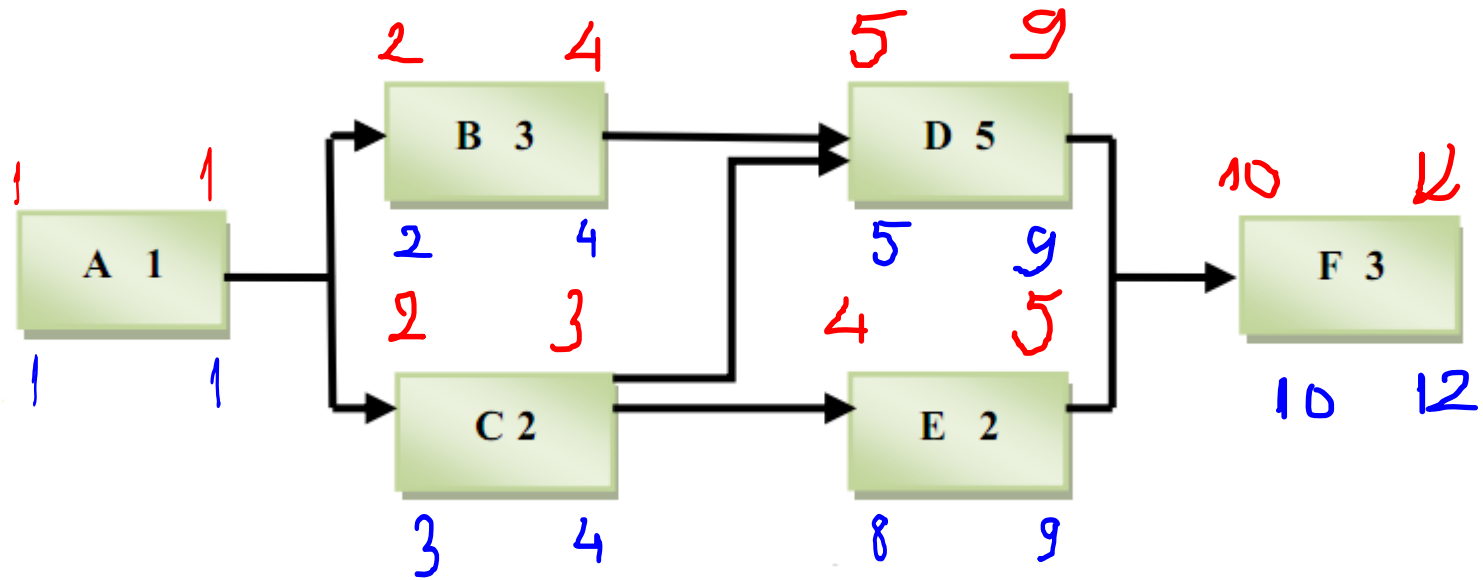   - o If A[i] is the final task
        - LF (A[i]) = EF (A[i])
      - o Else
        - » LF (A[i])= Min (LS(A[j])) - 1, A[j] is the after task (sau) A[i]
      - o LS(A[i]) = LF(A[i]) - Duration + 1

Project Network Diagram

- Ví dụ

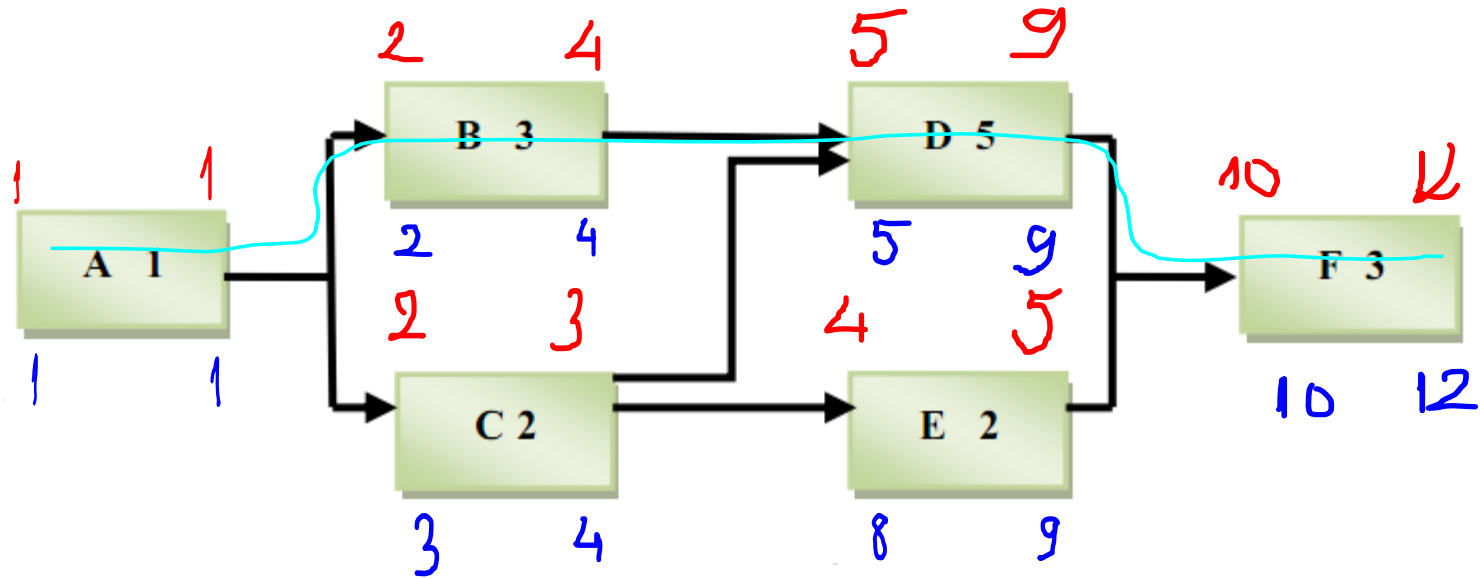
$$LF\ (A[i])= Min\ (LS(A[j])) - 1$$

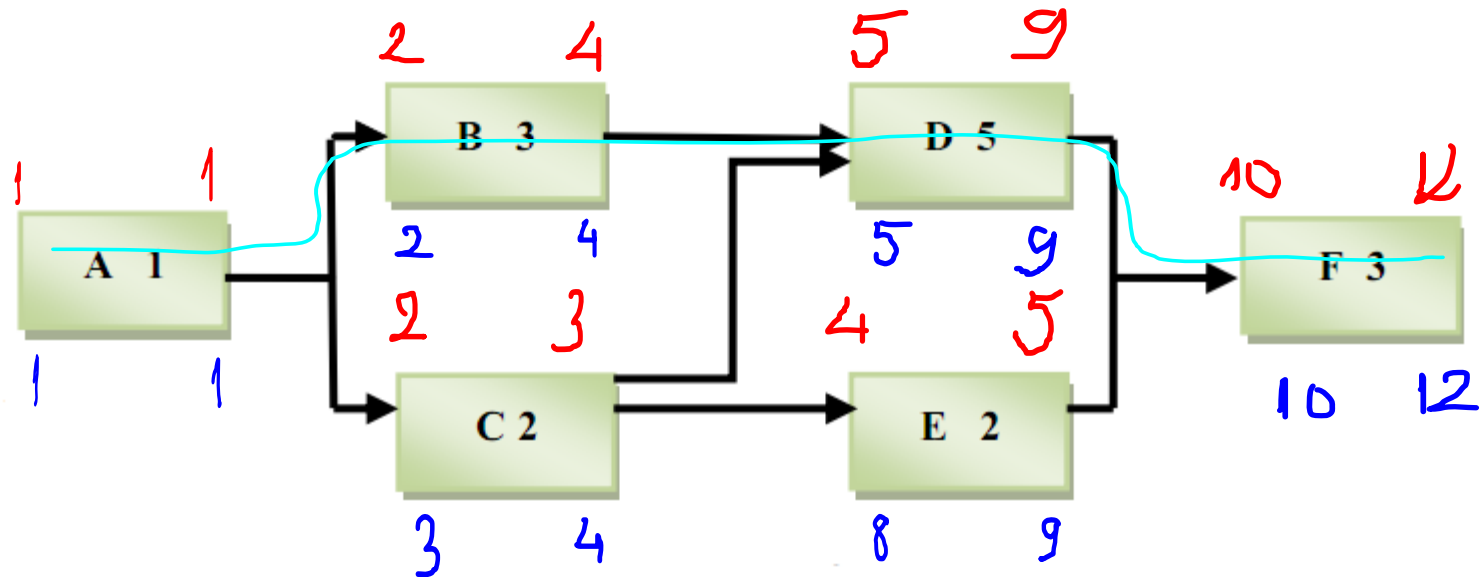$$LS(A[i]) = LF(A[i]) - Duration\ + 1$$

Project Network Diagram

- Critical Path
  - The specific set of sequential tasks upon which the project completion date depends

Project Network Diagram

- Float
  - Number of delay days without affecting the project completion time
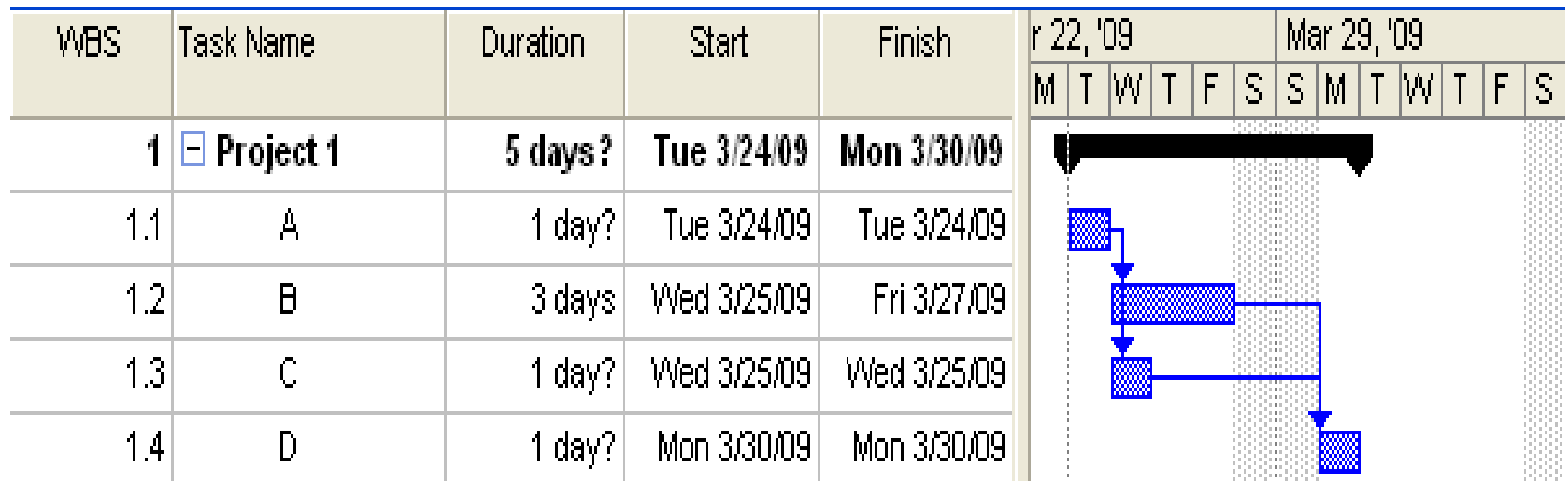 - $F(A) = LS(A) - ES(A) = LF(A) - EF(A)$

Project Network Diagram

- Critical Path comments
    - Priority tasks in Critical Path
    - Critical Path could change during the project management
    - Focus on the task with low float time
    - Maybe have many Critical Paths
- PND comments
    - Show clearly order
    - Easy to identify Critical Path
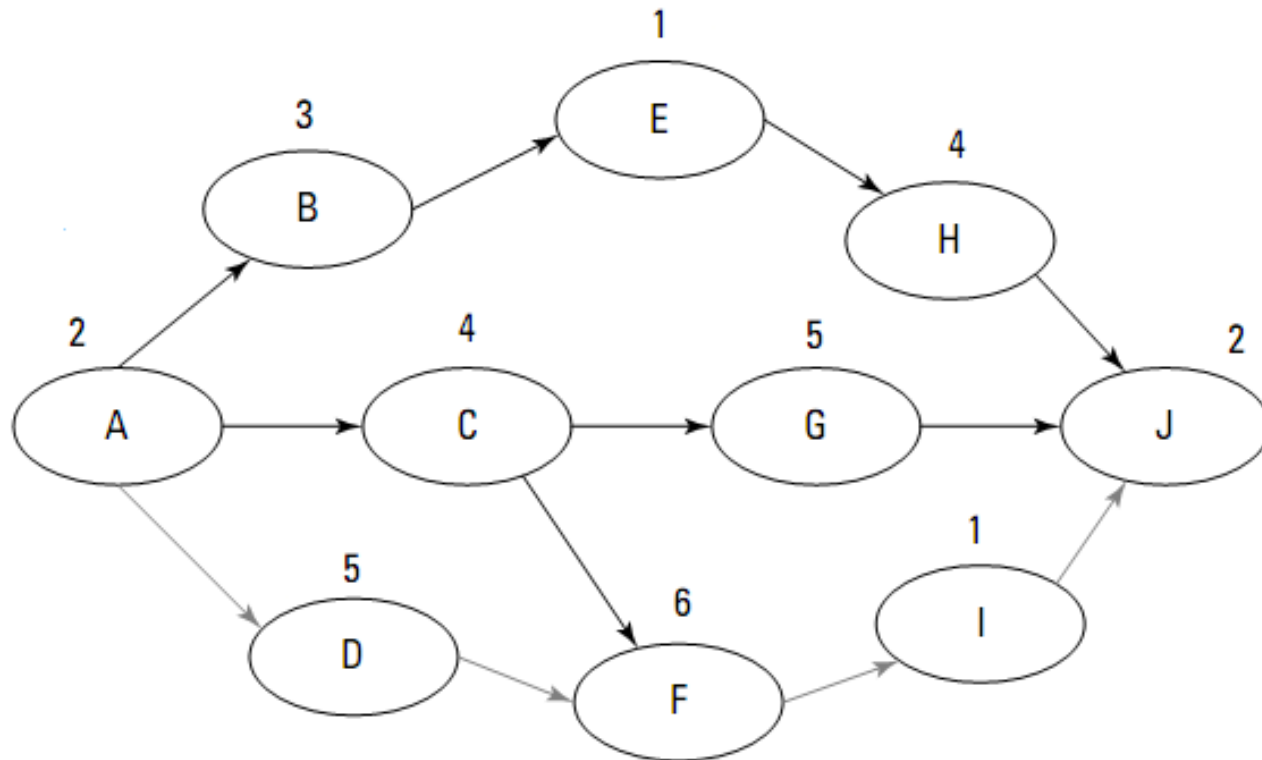   - Hard for big project with many task on many pages

8/31/2020

Gantt Chart

- Popular using
- Easy to create

WBS	Task Name	Duration	Start	Finish
1	⊟ **Project 1**	5 days?	Tue 3/24/09	Mon 3/30/09
1.1	A	1 day?	Tue 3/24/09	Tue 3/24/09
1.2	B	3 days	Wed 3/25/09	Fri 3/27/09
1.3	C	1 day?	Wed 3/25/09	Wed 3/25/09
1.4	D	1 day?	Mon 3/30/09	Mon 3/30/09

Network Diagram Exerciser

- Exerciser 1, compute ES, EF, LS,LF and identify critical path

PM ?

- Where am I?
- What ways?

- Burn Down Chart Tool.
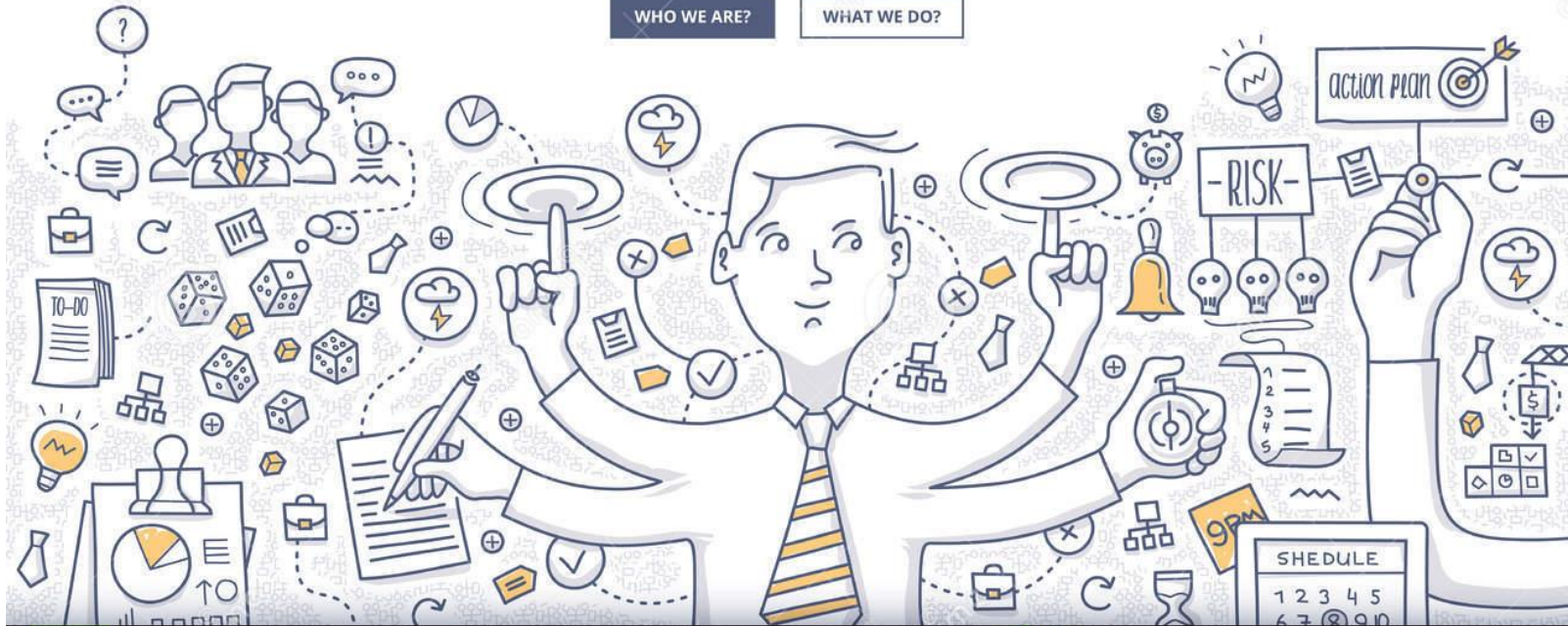- Expert System
- DSS
- To Do List

Where am I?

44

What ways?

Burn Down Chart?

Project ABC - Burndown Chart
Sprint - N

Expert System

DSS

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TO DO LIST

Daily To Do List

Enter Due Date to Highlight Tasks:

1-Jan-19

Date	Task	Category	Priority	Status	Percentage Done		Due Date	Due Time
14-Oct-15	Pack for Half break	Business	Medium	Not Started		20	14-Oct-15	12:30 PM
15-Oct-19	Prepare Chapter 14, pgs 45 - 65	Education	High	In Progress		57	1-Feb-19	1:30 AM
16-Oct-19	Art project due	Education	Medium	In Progress		69	1-Jan-19	3:00 PM
17-Oct-19	Recheck Pages 3-17	Personal	Low	Postponed		25	2-Feb-19	4:30 PM
18-Oct-19	Create task list in Excel for Office	Business	High	In Progress		88	2-Mar-19	5:00 PM
19-Oct-19	Worksheet 22	Personal	Low	In Progress		35	1-Jan-19	5:30 PM

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Concepts

- The formula for the weighted average *is (Pessimistic + (4 * Most Likely) + Optimistic) / 6.*

- CV is calculated $CV = EV - AC$. Therefore, a negative Cost Variance means that you have spent more Actual Cost than you have Earned Value.

- BAC = EAC+EV-AC (Estimate at Completion (EAC), Budget at Completion)

- The formula for calculating the Variance at Completion (VAC) is VAC = BAC – EAC

Formulas

- Cost Performance Index CPI = EV / AC = BAC / EAC

- You are asked to calculate the Future Value of a 200,000 investment at 3.5% for 20 years. The formula for Future Value is FV = PV * $(1+r)^n$. Therefore you calculate 200,000 * $(1 + 0.035)^{20}$ = 397,957.

- Schedule variance SV = EV - PV (PV : Planed Value)

- The equation for the TCPI based on the EAC: (BAC – EV) / (EAC – AC).

- Schedule performance index SPI = EV / PV

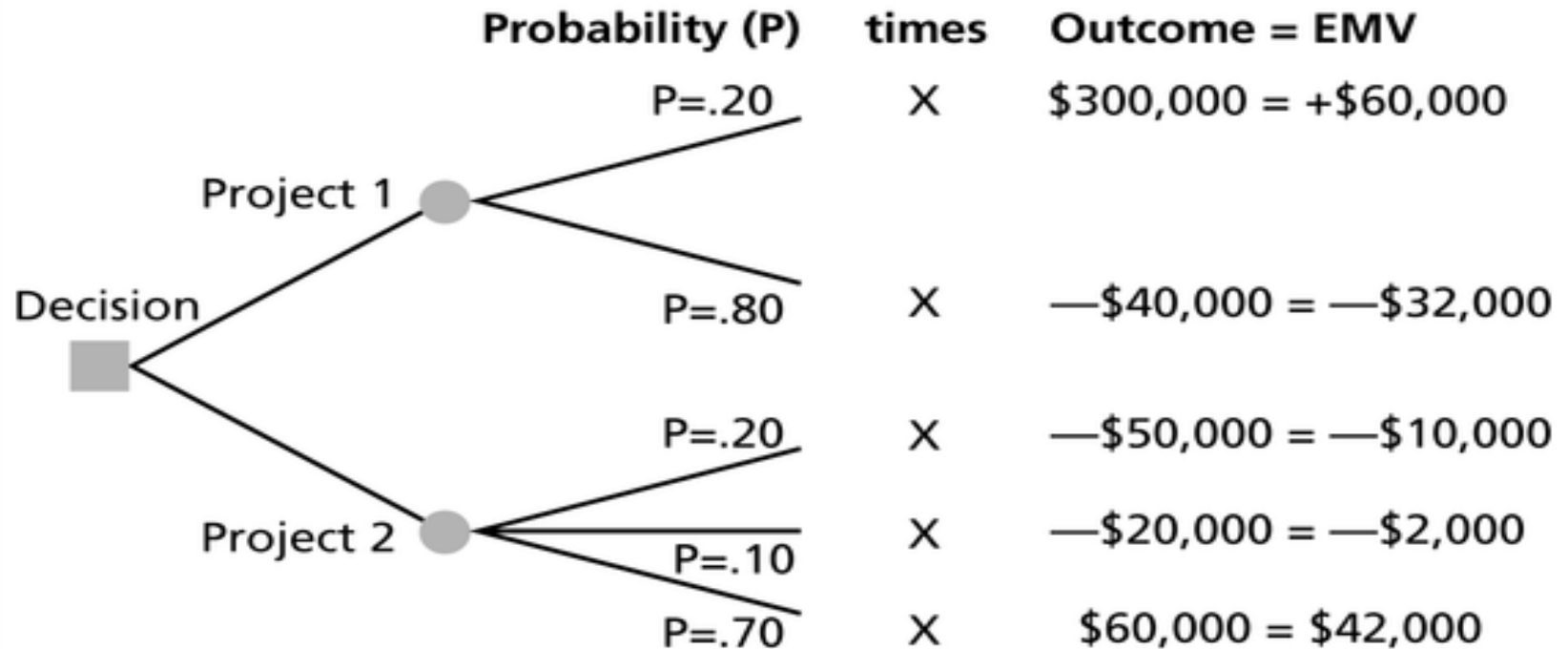- pp. 250 PMBOK 5th pdf file.

Function Point Estimation

- UFP: Unadjusted Function Point
- DFP: Data Function Point
- TFP: Transaction Function Point
- UFP = DFP + TFP
- AFP: Adjusted Function Point
- VAF: Value Adjusted Factor
- GSC: General System Characteristic = DI : Degree of Influence
- AFP = UFP * VAF
- VAF = (ΣGSC *0.01)+0.65

Example

- Consider project D: DFP= 300fp, TFP=600fp, ΣGSC=30

- Train for a group with 5 people in 2.5 day(s), 4 hours/day, fee 10$/person/hour

- Rent 5 server machines, 150$/ machine

- Buy 3 licenses for all, 2500$/ license /machine

- Cost Rate=22 ($/hour)

- Productivity = 11 (hour/FP), a month has 176 (working hours)

- Compute AFP, t (m-hours) , PM (Person-months), b, B

- **Question 39: How much is the Estimate to Complete?**
- A.) ETC = 30,000, when EAC = 100,000 and AC = 70,000
- B.) ETC = 120,000, when BAC = 100,000 and EV = 20,000
- C.) ETC = 110,000, when BAC = 125,000 and EV = 25,000 and CPI = 1.1
- D.) ETC = 70,000, when BAC = 100,000 and AC = 30,000
- : There are several ways to calculate the Estimate to Complete (ETC).
- • ETC = EAC-AC
- • ETC = BAC-EV
- • ETC = (BAC-EV) / CPI
- Answers A, B and C all contain the numbers to calculate each of the formulas, but
- only answer A has the correct result of 30,000. The results shown for answer B
- (120,000) and C (110,000) are incorrect. The correct result for Answer B is 80,000
- and the correct result for answer C is 90,909. Answer D is completely impossible,
- because you cannot calculate the ETC by using BAC and AC in any combination.

EMV

	Probability (P)	times	Outcome = EMV
Project 1	P=.20	X	$300,000 = +$60,000
	P=.80	X	—$40,000 = —$32,000
Project 2	P=.20	X	—$50,000 = —$10,000
	P=.10	X	—$20,000 = —$2,000
	P=.70	X	$60,000 = $42,000

Project 1's EMV = $60,000 —32,000 = $28,000
Project 2's EMV = —$10,000 —2,000 + 42,000 = $30,000

- The Expected Monetary Value is calculated by multiplying the probability

- with the impact and then adding up the total

- Probability Impact in $ Probability * Impact

- 0.5 -8,000 -4,000

- 0.2 -7,000 -1,400

- 0.2 -4,500 -900

- 0.1 2000 200

- **-6,100**

- **Question**

- Hãy nêu phương án xử lý tình huống "*Trưởng nhóm kỹ thuật không thực hiện xét duyệt chất lượng mã nguồn chương trình làm khách hàng phàn nàn*".

- Hãy phân tích vai trò của yếu tố "*đánh giá công bằng và khách quan*" trong việc quản lý con người trong quá trình thực hiện dự án

- Hãy nêu phương án phòng chống rủi ro "*Yêu cầu chức năng bị thay đổi thường xuyên* ".

QUẢN LÝ DỰ ÁN PHẦN MỀM

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LẬP KẾ HOẠCH (tt)

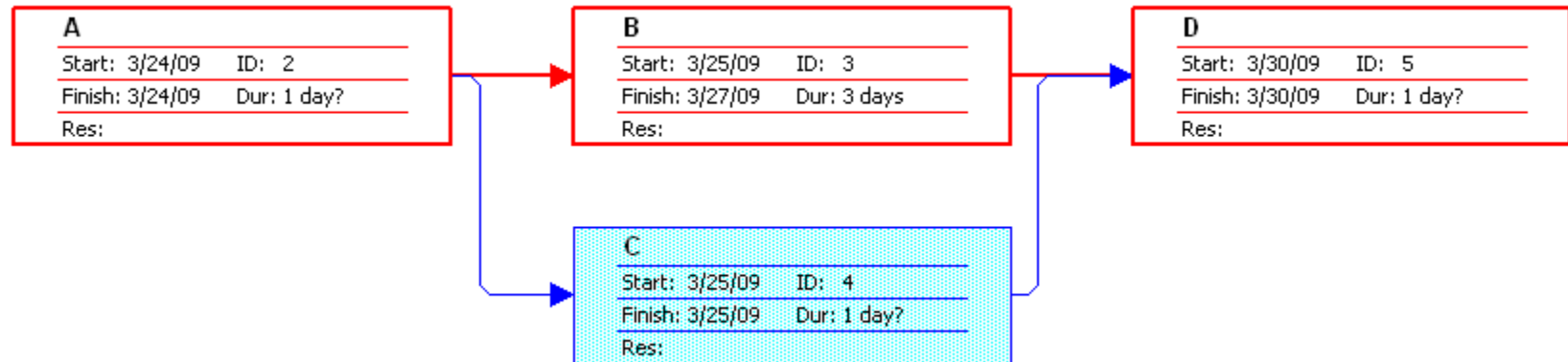# Agenda

- Introduction

- Resources assignment

- Cost management

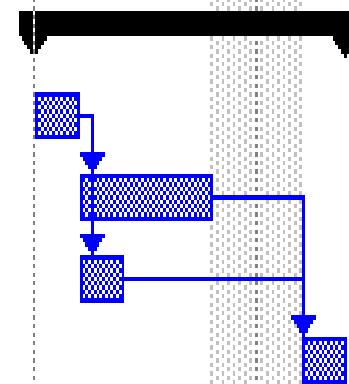# Introduction

- Work Breakdown Structure
- Effort Estimation

STT	Công việc	Công việc trước	Ước lượng
1	A		1 MD
2	B	A	3 MD
3	C	A	1 MD
4	D	B, C	1 MD

- Scheduling
  - Project Network Diagram
  - Gantt Chart

Introduction

| WBS	Task Name	Duration	Start	Finish
1	⊟ **Project 1**	5 days?	Tue 3/24/09	Mon 3/30/09
1.1	A	1 day?	Tue 3/24/09	Tue 3/24/09
1.2	B	3 days	Wed 3/25/09	Fri 3/27/09
1.3	C	1 day?	Wed 3/25/09	Wed 3/25/09
1.4	D	1 day?	Mon 3/30/09	Mon 3/30/09

Introduction

- Next step?
  - Resource assignment
    - In this slide, focus on people.
  - Compute cost

Resource assignment

- Significant activities
  - Identify roles in project
  - Create Responsibility Assignment Matrix
  - Assign human resource

Resource assignment

WBS	Task Name	Duration	Start	Finish	Resource Names
1	⊟ **Project**	**5 days**	**Tue 3/24/09**	**Mon 3/30/09**	
1.1	A	1 day	Tue 3/24/09	Tue 3/24/09	BA 1
1.2	B	3 days	Wed 3/25/09	Fri 3/27/09	Dev 2
1.3	C	1 day	Wed 3/25/09	Wed 3/25/09	Dev 1
1.4	D	1 day	Mon 3/30/09	Mon 3/30/09	Dev 1,Dev 2
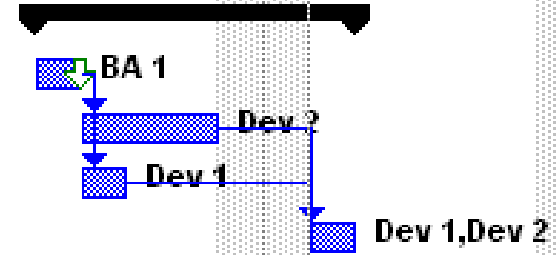
- Note
  - Focus on tasks in critical path or low float time
  - Equal float time => focus on complex tasks

Resource assignment

- Skills Matrix

No	Resource	Project Skills				
		Analyst	.NET	HTML/ Javascript	Test	Database Design
1	Perter	1	5	4		3
2	Lary	5	2	1		
3	Gible	2	3	5		
4	Chirag		1			4
…	…	…	…	…	…	…

Resource assignment

- Ientify human resource for projects

No	Resource	Project Role
1	Perter	Technical Lead
2	Lary	BA
3	Gible	Developer
…	…	…

- ➡

Task Name	Duration	Start	Finish	Resource Names	Mar 22, '09							Mar 29, '09						
					S	M	T	W	T	F	S	S	M	T	W	T	F	S
⊟ **Project**	**5 days**	**Tue 3/24/09**	**Mon 3/30/09**															
A	1 day	Tue 3/24/09	Tue 3/24/09	Lary														
B	3 days	Wed 3/25/09	Fri 3/27/09	Gible														
C	1 day	Wed 3/25/09	Wed 3/25/09	Perter														
D	1 day	Mon 3/30/09	Mon 3/30/09	Gible,Perter														
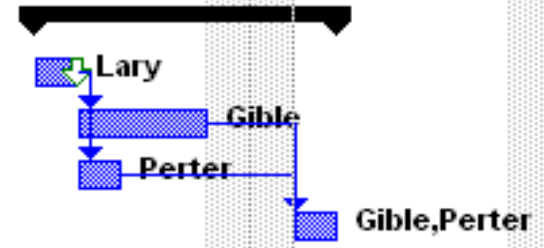
Resource assignment

No	Resource	Role	Task	Duration	Start	Finish	Other Participants
1	Perter	Technical Lead	C	1	03/25/2009	03/25/2009	Gible
			D	…	…	…	…
2	Lary	BA	…	…	…	…	…
3	Gible	Developer	…	…	…	…	…
…	…	…	…	…	…	…	…

RAM

Responsibility Assignment Matrix						
R – RESPONSIBLE A – ACCOUNTABLE C – CONSULTED I – INFORMED Task Name:	John	Emily	Andy	Katie	Tom	Becky
Market Research	R	C	C	A	I	
Advertising	R	A	C	I	I	
Storyboarding	A	R		C	I	C
Funding		C	R	I		I
Design		R	A	C	I	C
Production			A	R	I	
Distribution	C		C		R	A

Resource assignment

- Note in Resource assignment
  - Staff Skills
  - Staff personality
  - Teamwork
  - Staff Career path orientation
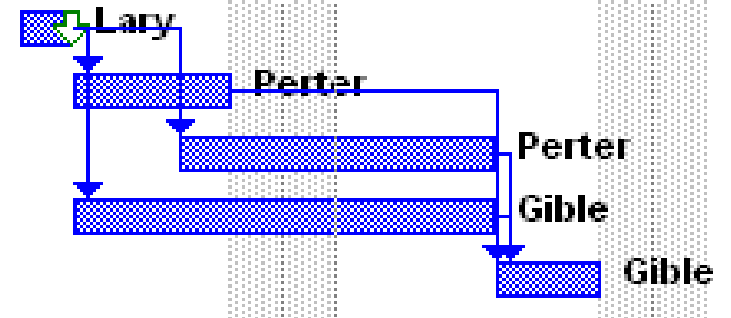
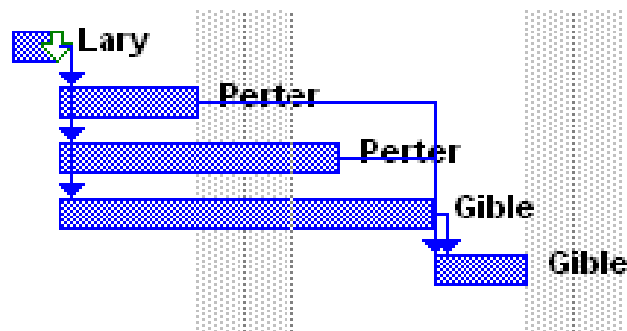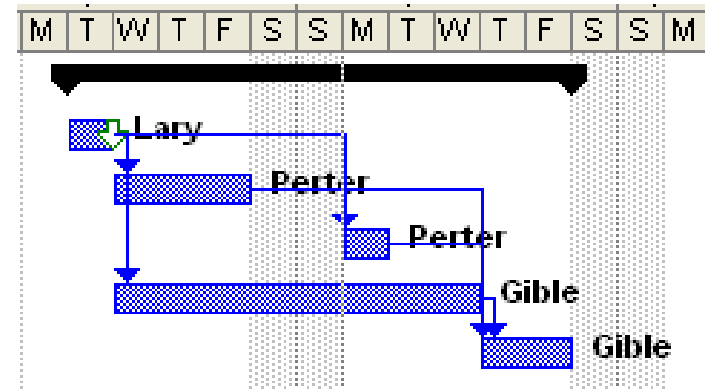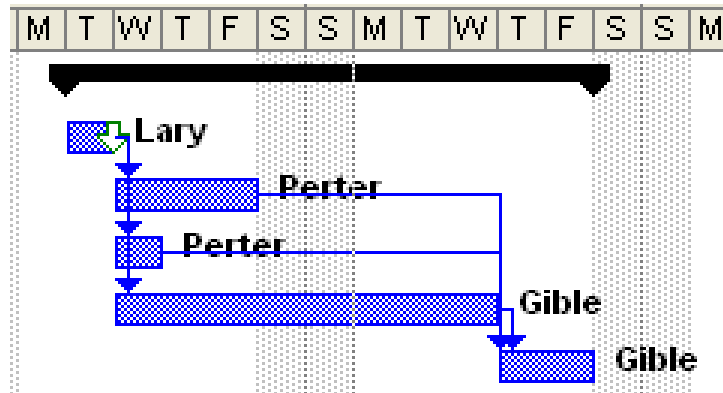# Resource assignment

- =>Balance

Resource assignment

• Balance

• ➜
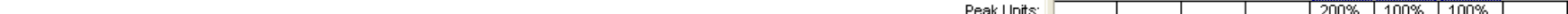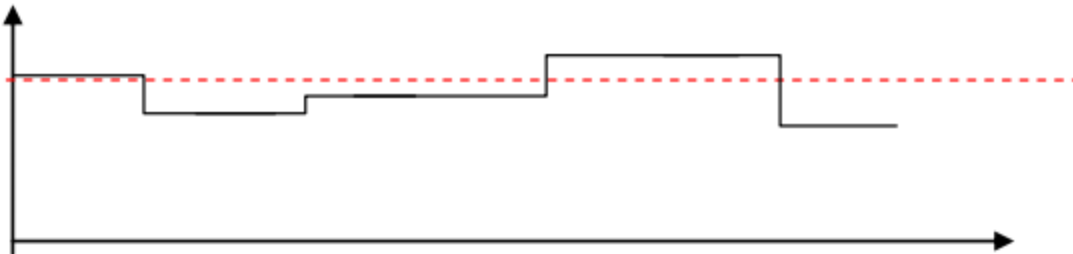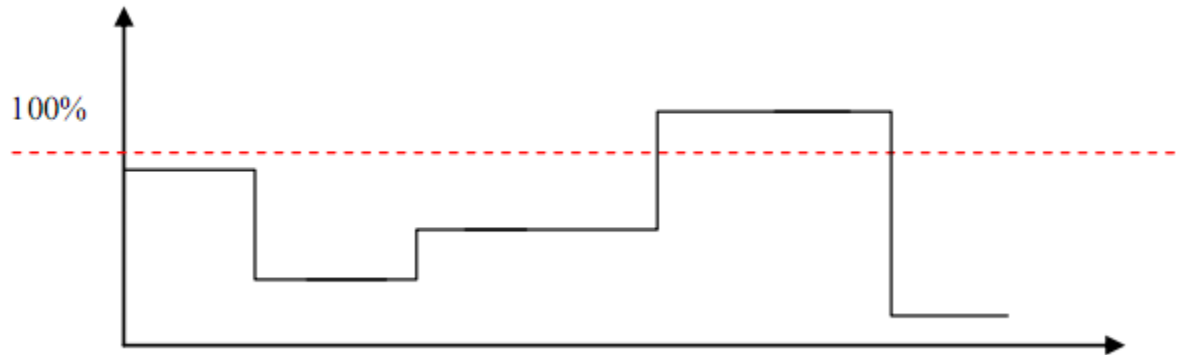
Resource assignment
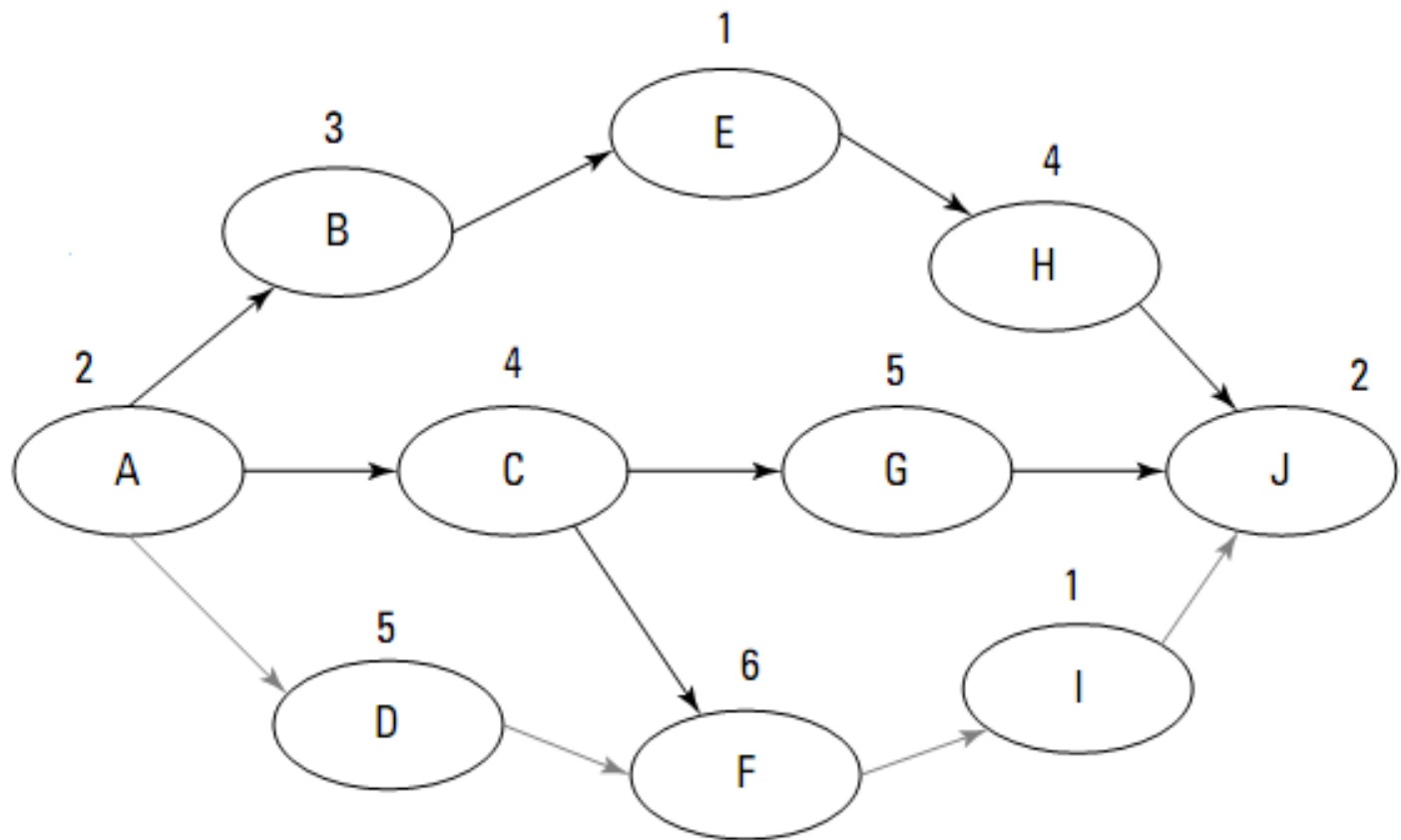
Compute cost

- Cost
  - Human
  - Hardware & software
  - Support (print,…)
  - Others
    - Transportation
    - Training
    - Team building

Compute cost

WBS	Task	Project Cost($)				
		Labor Cost	Equipment Cost	…	…	Total
0.0	Project A	100.000	20.000			500.000
1.0	Requirements	20.000				
2.0	Design	10.000				
3.0	Implementation	40.000				
4.0	Testing	30.000				

Salary: 10 $/days. 8 working hours
Overtime: 3 $/giờ
#staff: 2
Total: 17 days

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Scheduling
 - Minimum cost
 - Balance